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EQUIPMENT FOR PRODUCTION OF PRECISION ROLLED THREADS

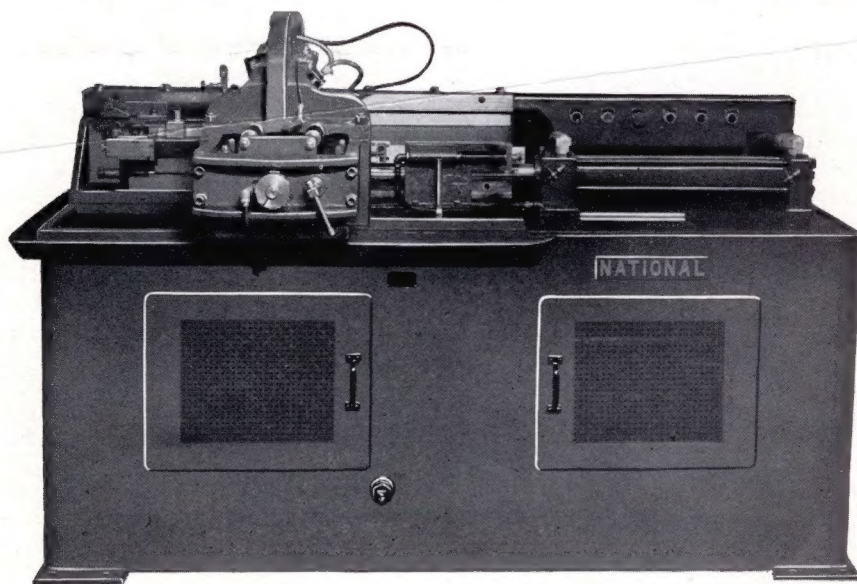


NATIONAL ELECTRIC WELDING MACHINES CO., BAY CITY, MICH.

It's NATIONAL *Engineering*



THAT'S ROLLED IN THE THREAD

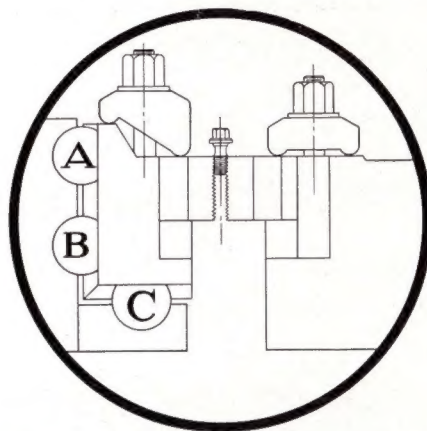


MEETS AIRCRAFT BUILDERS' REQUIREMENTS.

Now in production on various Aircraft parts we wish to announce to Producers of all Precision Threaded Parts, a new NATIONAL FULL HYDRAULIC PRECISION THREAD ROLLER—employing principles entirely new to an old art.

The hydraulic controlled reciprocating ram for the moving die, and the other engineering features of the machine, provide accurate cold working of thread, maintaining the most consistent production at most exacting tolerances.

For more detailed information write the factory.



MICROMETER DIE ADJUSTING ARRANGEMENT—By micrometer adjustment of wedges A and B the parallel or out of parallel alignment of die faces can be perfectly controlled. Also adjustment of wedge C corrects for elevation alignment of dies.

"Patent Applied For"

SIX THINGS YOU SHOULD KNOW ABOUT NATIONAL THREAD ROLLERS

Precision tolerances consistently maintained

Class 3 and 4 threads meet aircraft builders specifications on all parts now being rolled.

20% increase in tensile strength

Over cut thread because of grain flow structure obtained by cold working under proper pressures.

Full hydraulic operation

for smoother die motion and constant but selectable rolling speed.

Longer die life

because hydraulic drive and hydraulic cushion exert only the required working pressures.

Micrometer die adjustment

permits accurate setting of dies eliminating the use of shims.

Delivery approximately 12 weeks.

FOR YOU:

A NEW AND BETTER METHOD OF PRODUCING THREADS

After having completed quite a lengthy developmental program in connection with thread rolling, National Electric Welding Machines Company of Bay City, Michigan, have perfected a machine for the sole purpose of rolling threads on alloy steel bolts, having tolerances within those of Class No. 3, or Class No. 4, threads. As the work produced by this equipment meets with aircraft builders' requirements in all respects, there are many of these machines now in production in various aircraft parts plants throughout the industry.

According to test reports from actual production equipment, it is claimed that the product turned out by these machines has superior finish of the rolled thread, and, in addition, a tensile strength approximately 20% in excess of that of a cut thread.

Some of the features incorporated in the design of this Thread Rolling Machine are:—a complete hydraulic system for actuating all moving members; the reciprocating ram, to which the moving die is attached, is operated by a direct connected, hydraulic, cylinder which insures very smooth transverse operation, entirely eliminating any mechanical wear of parts which could cause defective threads; and, a bridge structure, incorporated with the heavy cast frame, to insure maximum rigidity to withstand the very high pressures required for rolling and forming the thread.

While rolling threads in various steels ranging from the very low carbon soft steels, to the N. E. alloy steels, having hardnesses of 32 to 36 Rockwell C, it has been found that the proper thread rolling speed is different, for different materials. By being able to regulate this speed for the material being rolled, users are able to select the speeds which will provide the greatest die life. In other words, too much speed, when rolling threads in alloy steels, shortens die life. The hydraulic drive, with its variable speed control, allows proper speeds to be selected to suit the steel being rolled.

Another feature, which warrants comment, is the design incorporated in the mounting of the thread rolling dies. The thread rolling die, which is moved by the reciprocating ram, is attached to a saddle block, which in turn is mounted on three (3) adjusting wedges. (See illustration page No. 2.)

By having a compound screw adjustment on these taper wedges, "A" and "B" (page 2) users are able to obtain micrometer movement of the wedges and thereby tilt the die to correctly align the die face of the moving die with that of the stationary die, thus providing accurate control over the taper, or parallel requirements of the thread being rolled. In some cases it is desirable to roll a thread having a slightly smaller pitch diameter on the end than near the head of the bolt. This can be quickly and very accurately accomplished by this adjustment feature. When making a die setup, it is often desirable to horizontally elevate the moving die to match with the stationary die, and this is also possible, through a micrometer screw adjustment of wedge "C". These adjustment features make this equipment adaptable to quick changeover during setup operation, as well as providing accurate control.

During the process of thread rolling, a hydraulic pump provides a flushing oil flood to the faces of the dies, while in operation, and also provides a pressure lubricating system to the moving members of the machine. After the part has been rolled, it drops into a chute, which is lined with leather, to prevent marring of the highly finished thread surfaces, and then rolls into an oil bath, which cushions the movement into receiving pan, thus further protecting against damage.

On high production parts, a hooper feed can be applied, which will automatically feed the bolt blanks, thus eliminating the requirements for a full-time operator.

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